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group from Greenland to Patagonia in the western hemisphere and from Spitzbergen to Cape Colony in the eastern is to be contrasted with its present occurrence in South America and the Australasian region. This means that araucarians have disappeared from North America, Europe, Africa, and practically all of Asia. Recent investigations in the Atlantic coastal plain show that the group not merely occurred in that region during the Mesozoic, but was abundant, perhaps the most abundant coniferous type of the older Mesozoic. From this region BERRY describes three new species: *Araucarites Zeilleri*, from New Jersey; *Araucaria bladenensis*, from North Carolina to Alabama; and *Araucaria Jeffreyi*, from North Carolina.—J. M. C.

Embryo sac and embryo of Urticaceae.—MODILEWSKY¹⁵ has examined twelve genera of Urticaceae (*Urtica*, *Elatostema*, *Laportea*, *Urera*, *Parietaria*, *Fleurya*, *Boehmeria*, *Dorstenia*, *Morus*, *Celtis*, *Cannabis*, and *Humulus*), and finds that the embryo sac and embryo are in general of the ordinary dicotyledonous type. *Elatostema sessile*, *Dorstenia drakeana*, and *D. contrayerva* are said to be parthenogenetic, and *Celtis occidentalis* is chalazogamic. In the species of *Dorstenia* and in *Urtica cannabina* the antipodals multiply, but finally disappear. The polar nuclei fuse very early, and in *Elatostema* endosperm formation occurs without polar fusion. In *Urtica cannabina* a conspicuous antipodal haustorium is developed, and a much smaller one appears in *U. urens*. Many other details are recorded, but they are of no special significance.—J. M. C.

Black rot.—The black rot of the grape is the subject of a recent bulletin by REDDICK and WILSON,¹⁶ which is mainly popular in nature, and is well illustrated and clear. The spores germinate on the vines only in the presence of water. Infection is noticeable after a period of twelve to twenty days, or upon the berry in eight to fourteen days. After discussing the control, it is stated that four acres, well sprayed, made a gain of 1662 pounds, equalling a saving of \$32.95 per acre. It is recommended that mummied fruit be picked to avoid the spread of the disease, that the ground be turned over as completely as possible, to bury rotted berries, and that the vines be sprayed with Bordeaux mixture, as has been recommended heretofore.—F. L. STEVENS.

Leaves in autumn.—TSWETT summarizes the knowledge regarding the emptying of leaves in autumn thus.¹⁷ It may be considered as settled that the nitrogenous compounds diminish and are carried back, proteolysis simplifying the proteins to this end; results as to phosphorus compounds are more contradict-

¹⁵ MODILEWSKY, JAKOB, Zur Samenentwicklung einigen Urticifloren. *Flora* 98: 423-470. figs. 71. 1908.

¹⁶ REDDICK, DONALD, and WILSON, C. S., The black rot of the grape, and its control. *Cornell Univ. Agric. Exp. Sta., Bull.* 253:367-388. April 1908.

¹⁷ TSWETT, M., Ueber die Verfärbung und die Entleerung des absterbenden Laubes. *Ber. Deutsch. Bot. Gesells.* 26a:88-93. 1908.

ory, with the weight of evidence in favor of their recovery; the removal of salts needs thorough investigation.

As to the autumnal pigments, he reports¹⁸ that the yellows are due to a new pigment or group of pigments, which he proposes to call autumnal xanthophyll. He regards it as probably a decomposition product of the "normal xanthophylls, perhaps also of the carotin."—C. R. B.

Torreya in the Cretaceous.—BERRY¹⁹ has described a new species of *Torreya* (*Tumion carolinianum*) from the Cretaceous of North Carolina, based on leaf-bearing branches, the leaves showing the distribution and character of the stomata. The genus exists today as isolated species, which are widely separated geographically, and this fact alone would suggest an ancient type. The discovery of intermediate stations will bring a knowledge of the time of general distribution and help settle the question of relative antiquity.—J. M. C.

Phylogeny of pteridophytes.—Lady ISABEL BROWNE²⁰ has begun a series of papers intended to bring together the large volume of recent work on the vascular anatomy of pteridophytes, and apply it to a consideration of the phylogeny and interrelationships of the group. This is a very useful service, for it organizes the scattered facts in convenient form, whether one accepts all the inferences or not. In the first two papers, the Sphenophyllales and Equisetales are presented and Lycepodiales begun.—J. M. C.

¹⁸ TSWETT, M., Ueber das Pigment des herbstlich vergilbten Laubes. Ber. Deutsch. Bot. Gesells. **26a**:94-101. 1908.

¹⁹ BERRY, EDWARD W., A mid-Cretaceous species of *Torreya*. Am. Jour. Sci. **25**:382-386. 1908.

²⁰ BROWNE, ISABEL, The phylogeny and interrelationships of the Pteridophyta. A critical résumé. New Phytol. **7**:93-113, 150-166. 1908.